



USDA, National Agricultural Statistics Service

# Indiana Crop & Weather Report

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## CROP REPORT FOR WEEK ENDING SEPTEMBER 6

### AGRICULTURAL SUMMARY

Cooler than normal temperatures were experienced again during the week as the corn and soybean crops slowly advance toward maturity, according to the Indiana Field Office of USDA's National Agricultural Statistics Service. Temperatures across the state ranged from 4° to 10° below normal. Sudden death syndrome (SDS) and white mold have damaged some soybean fields around the state. Harvest of corn silage and seed corn was in full swing. Many farmers took a day off to attend the Farm Progress Show.

### FIELD CROPS REPORT

There were 6.5 **days suitable for field work** during the week. Corn **condition** is rated 63 percent good to excellent compared with 57 percent last year at this time. Forty-one percent of the **corn** is in **dent** stage compared to 58 percent last year and 77 percent for the 5-year average. Three percent of the corn crop is **mature** compared to 7 percent last year and 22 percent for the 5-year average.

**Soybean condition** is rated 63 percent good to excellent compared with 46 percent last year at this time. Ninety-five percent of the **soybean** acreage is **setting pods** compared to 96 percent last year and 99 percent for the 5-year average. Six percent of the soybean acreage is **shedding leaves** compared with 16 percent last year and 23 percent for the 5-year average.

The **third cutting** of **alfalfa hay** is 83 percent complete compared with 91 percent for both last year and the 5-year average. **Tobacco harvest** is 25 percent complete compared with 13 percent last year and 25 percent for the 5-year average.

### LIVESTOCK, PASTURE AND RANGE REPORT

**Pasture condition** is rated 64 percent good to excellent compared with 28 percent last year at this time. Pastures are exceptionally good for this time of year. Livestock remain in mostly good condition.

### CROP PROGRESS TABLE

Crop	This Week	Last Week	Last Year	5-Year Avg.
Percent				
Corn in Dough	89	79	93	97
Corn in Dent	41	23	58	77
Corn Mature	3	NA	7	22
Soybeans Setting Pods	95	88	96	99
Soybeans Shedding Lvs	6	2	16	23
Alfalfa – 3rd Cutting	83	66	91	91
Tobacco Harvested	25	NA	13	25

### CROP CONDITION TABLE

Crop	Very Poor	Poor	Fair	Good	Excellent
Percent					
Corn	3	8	26	50	13
Soybean	3	9	25	51	12
Pasture	2	8	26	50	14

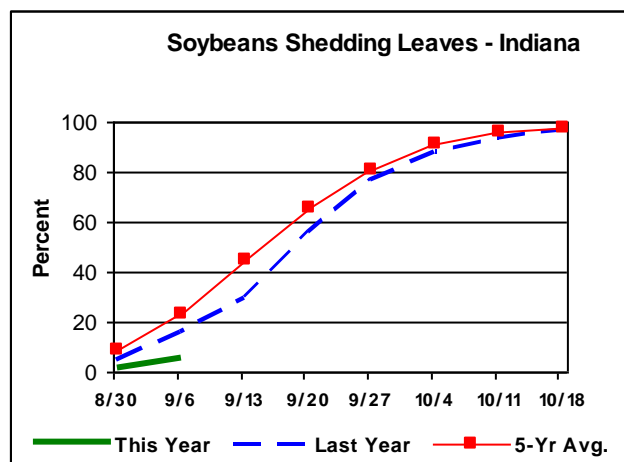
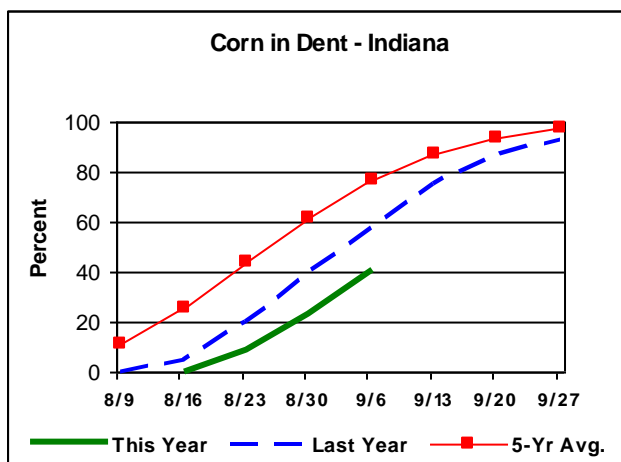
### SOIL MOISTURE & DAYS SUITABLE FOR FIELDWORK TABLE

	This Week	Last Week	Last Year
Percent			
<b>Topsoil</b>			
Very Short	4	2	22
Short	25	15	44
Adequate	67	72	34
Surplus	4	11	0
<b>Subsoil</b>			
Very Short	4	2	16
Short	22	18	40
Adequate	68	69	43
Surplus	6	11	1
<b>Days Suitable</b>	6.5	5.3	6.0

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## Crop Progress



### Other Agricultural Comments And News

### Cool Days, Cold Nights, Slow Corn, What's Next?

1 Sep 2009

URL:<http://www.kingcorn.org/news/articles.09/CropProgress-0901.html>

The good news is that most of Indiana's late-planted corn crop escaped serious heat or drought stress during the critical pollination period and, to date, much of the important grain filling period. The discouraging news is that the unusually cool 2009 growing season continues to put the brakes on the development of the crop. According to the most recent weekly USDA crop progress report, the majority of the state's crop has progressed through the dough stage of development (R4) and is moving toward the dent stage (R5), but now lags nearly 3 weeks behind the 5-year average progress. If the current rate of crop progress continues for the remainder of the season, quite a bit of the state's crop will mature in October rather than September.

Recent night-time low temperatures in the low to mid-40's F have certainly increased growers' concerns about the prospects for successfully maturing this crop and whether these unusually cool temperatures will impact grain yield. Unfortunately, the effects of such an unusually cool grain filling period on corn maturity dates and yield in the central Corn Belt are not well known, partly because the historical occurrence of such unusually cool grain filling periods is so infrequent.

In an earlier article I referenced the similarity between this season's slow pace of crop development with three earlier years of 1992, 2002, and 2008 (Fig's 1 and 2, which can be viewed at: [www.agry.purdue.edu/ext/corn/news/articles.09/CropProgress-0901.html](http://www.agry.purdue.edu/ext/corn/news/articles.09/CropProgress-0901.html)). Though crop progress in those three growing seasons were similarly delayed, the end result for grain yields varied dramatically. In my judgement, the 2009 growing season is more similar to the 1992 and 2008 growing seasons than to the disastrous 2002 growing season. Drought stress accompanied the delayed crop development in 2002 and contributed strongly to the large decrease from trend yield that year. Indiana's corn crop has not experienced such widespread drought stress in 2009. The USDA-NASS certainly believes that yields will be

good this year, according to their first yield estimate released 12 Aug that pegs Indiana's 2009 corn crop at 163 bu/ac or 5.6% above trend yield.

Nevertheless, the recent weeks of cool weather accentuated with the recent nights of temperatures in the low to mid-40's F have fueled vigorous debates amongst the regulars down at the Chat 'n Chew Cafe about how the crop will respond. Moderate temperatures and adequate moisture during the grain fill period are generally favorable for kernel set success and kernel weight development. However, it is true that temperatures as low as 50F or lower can be detrimental to the photosynthetic processes. Canadian researchers Ying et al. (2000) documented that photosynthetic rates in corn decreased by 18 to 30% the day following a cold temperature stress of about 40F during grain filling. The more important question is whether multiple days of cold temperature stress during grain filling can cause longer-term reductions in photosynthetic rates that may actually lead to a premature senescence and development of kernel black layer. There is limited research that addresses this question.

Observations over the years, though, lead me to believe that there comes a point late in grain fill where extended periods of cool temperatures cause the plant to slowly shut down even though no actual frost injury has occurred. These observations are in agreement with those of Daynard (1972) who suggested that extended periods of cool temperatures, not frost, were a more probable cause of what he characterized as "premature" black layer development. He noted that kernel black formation occurred shortly after cold spells when the average daily MAXIMUM temperatures were 54F or cooler. The good news, to date, is that we have yet to experience such low daily MAXIMUM temperatures.

Our own research from 1992 offers us a hint of what to expect on the calendar timing of kernel black layer formation (i.e., physiological maturity) relative to the silking date (Fig. 4, which can be viewed at: [www.agry.purdue.edu/ext/corn/news/articles.09/CropProgress-0901.html](http://www.agry.purdue.edu/ext/corn/news/articles.09/CropProgress-0901.html)). The data shown in Fig. 4 are from

(Continued on Page 4)

# Weather Information Table

Week Ending Sunday September 6, 2009

Station	Past Week Weather Summary Data							Accumulation				
	Air						Avg	April 1, 2009 thru				
	Temperature			Precip.				September 6, 2009				
	Hi   Lo   Avg			DFN	Total	Days	Soil	Precipitation			GDD Base 50°F	
	Hi	Lo	Avg	DFN	Total	Days	Temp	Total	DFN	Days	Total	DFN
<b>Northwest (1)</b>												
Chalmers_5W	80	42	61	-9	0.02	1		19.68	-0.14	63	2267	-403
Francesville	78	41	61	-7	0.01	1		21.25	+1.42	58	2221	-241
Valparaiso_AP_I	80	43	63	-6	0.12	1		17.31	-3.38	60	2335	-105
Wanatah	79	39	59	-9	0.02	1	67	20.65	+0.54	64	2111	-224
Winamac	79	45	62	-6	0.00	0		17.65	-2.18	66	2299	-163
<b>North Central(2)</b>												
Plymouth	79	43	61	-8	0.00	0		19.89	-0.12	77	2210	-373
South_Bend	78	43	62	-6	0.00	0		23.51	+4.13	59	2326	-102
Young_America	79	44	62	-7	0.00	0		18.95	-0.07	47	2324	-210
<b>Northeast (3)</b>												
Fort_Wayne	80	45	63	-7	0.00	0		20.23	+2.40	59	2436	-101
Kendallville	79	48	64	-4	0.00	0		18.09	-0.32	68	2478	+93
<b>West Central(4)</b>												
Greencastle	79	45	62	-10	0.00	0		29.70	+7.40	66	2282	-570
Perrysville	82	44	63	-7	0.00	0	67	29.56	+8.37	62	2585	-74
Spencer_Ag	81	48	64	-6	0.14	1		30.46	+7.67	66	2552	-137
Terre_Haute_AFB	81	46	65	-6	0.00	0		22.59	+1.53	55	2804	-31
W_Lafayette_6NW	81	43	62	-7	0.00	0	73	24.59	+4.83	61	2454	-68
<b>Central (5)</b>												
Eagle_Creek_AP	81	51	66	-5	0.00	0		27.07	+7.17	61	2784	-29
Greenfield	80	48	64	-7	0.00	0		30.94	+9.08	64	2484	-214
Indianapolis_AP	82	52	68	-4	0.01	1		30.26	+10.36	60	2878	+65
Indianapolis_SE	80	49	64	-7	0.00	0		33.01	+12.53	64	2485	-315
Tipton_Ag	81	44	62	-6	0.00	0	75	25.14	+5.07	65	2339	-111
<b>East Central(6)</b>												
Farmland	82	41	63	-6	0.00	0	70	16.94	-2.53	59	2386	-7
New_Castle	79	45	62	-7	0.00	0		22.61	+1.59	62	2280	-171
<b>Southwest (7)</b>												
Evansville	84	51	69	-4	2.19	2		25.79	+5.78	61	3275	+15
Freelandville	81	52	67	-5	0.29	2		29.64	+8.79	61	2858	-70
Shoals_8S	82	45	64	-8	0.17	1		29.79	+7.14	57	2596	-240
Stendal	83	50	68	-5	0.99	1		31.40	+8.91	57	3200	+124
Vincennes_5NE	83	49	67	-5	0.77	1	76	28.96	+8.11	63	2976	+48
<b>South Central(8)</b>												
Leavenworth	82	51	66	-5	0.45	2		29.36	+6.18	81	2864	+43
Oolitic	83	48	66	-5	0.03	1	70	26.76	+4.92	69	2630	-83
Tell_City	86	53	68	-5	1.50	2		25.97	+2.97	56	3085	-47
<b>Southeast (9)</b>												
Brookville	81	48	65	-5	0.00	0		23.98	+2.77	61	2685	+108
Greensburg	81	48	66	-5	0.00	0		30.80	+9.47	66	2807	+177
Seymour	82	48	65	-6	0.00	0		27.85	+6.99	56	2596	-114

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DFN = Departure From Normal.  
GDD = Growing Degree Days.  
Precipitation (Rainfall or melted snow/ice) in inches.  
Precipitation Days = Days with precip of .01 inch or more.  
Air Temperatures in Degrees Fahrenheit.

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two adapted hybrids grown at two locations (westcentral IN and southwest OH) in 1992 and represent a subset of data collected from 1991 through 1994 in our studies on the effect of delayed planting on thermal requirements of corn (Nielsen et al., 2002).

For planting dates where silking occurred towards late July, kernel black layer formation occurred by 21 September. Where silking occurred in early August, kernel black layer occurred by 11 October. Where silking occurred about mid-August, kernel black layer formation occurred by 27 October, but occurred 10 to 14 days AFTER a killing freeze event. All of the earlier silking dates (late July and early August) successfully reached kernel black layer prior to a killing freeze. Given the similarities between 1992 and 2009, I suggest that these data represent something of a crystal ball for us to gaze into for this year's crop.

So, what can we say about the fall freeze risk to this year's crop? We know that USDA-NASS estimated that 76% of Indiana's corn crop had silked by 2 Aug. Our previous research suggests that most of that should black layer no later than early October. Another 13% of the crop had silked by 9 Aug and that may black layer by approximately 11 Oct. Much of the remainder of the state's crop (8 to 11%) had silked by 16 Aug or later. That portion of the crop may not mature until late October to early November AND will likely experience a killing fall freeze PRIOR to normal kernel black layer formation. Assuming that the tail end of this year's crop will at least make it to the half-milkline stage of development prior to a killing freeze, the potential yield loss for an individual field due to premature plant death would be no more than 12% (Afuakwa & Crookston, 1984).

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